

## Back Creek

### BMP = Best Management Practice

Costs included in the following tables are based on BMP installation and do not include maintenance unless otherwise noted.

Back Creek Residential Waste Treatment BMPs			
BMP	Total Number of Systems	Cost per System	Total Cost
Septic System Pumpout (RB-1)	432	\$300	\$129,600
Sewer Connection (Targeted Areas and RB-2)	94	\$9,500	\$893,000
Repaired Septic System (RB-3)	328	\$3,600	\$1,180,800
Septic System Install/Replace (RB-4)	352	\$6,000	\$2,112,000
Alternative Waste Treatment System (RB-5)	34	\$16,000	\$544,000
<b>Total</b>			<b>\$4,859,400</b>

Back Creek Pet Waste Programs			
BMP	Units	Cost per unit	Total Cost
Educational Campaign	1	\$5,000	\$5,000
Pet Waste Stations <sup>1</sup>	5	\$4,180	\$20,900
<b>Total</b>			<b>\$25,900</b>
<sup>1</sup> Pet Waste Stations include cost for five years of bag/liner refills			

Back Creek Existing Detention Pond Retrofits				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Infiltration Basin	37	1160	\$6,000	\$6,960,000
Constructed Wetland	17	545	\$2,900	\$1,580,500
<b>Total</b>				<b>\$8,540,500</b>

Back Creek Proposed Stormwater BMPs				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Bioretention	304	1,520	\$10,000	\$15,200,000
Raingarden	304	304	\$5,000	\$1,520,000
Infiltration Trench	304	303	\$6,000	\$1,818,000
Manufactured BMP	304	367	\$20,000	\$7,340,000
Constructed Wetland	90	2,580	\$2,900	\$7,482,000

<b>Back Creek Proposed Stormwater BMPs</b>				
<b>BMP</b>	<b>Number</b>	<b>Total Acres-Treated</b>	<b>Cost per acre treated</b>	<b>Total Cost</b>
Detention Pond	10	196	\$3,800	\$744,800
Permeable Paver	0	0	\$240,000	\$0
Vegetated Swale	0	0	\$18,150	\$0
Rain Barrel	0	0	\$150	\$0
Riparian Buffer (Forested)	N/A	38	\$3,500	\$133,000
Riparian Buffer (Grass/Shrub)	N/A	38	\$360	\$13,680
<b>Total</b>				<b>\$34,251,480</b>

<b>Back Creek Proposed Cropland BMPs</b>			
<b>BMP</b>	<b>Acres Installed</b>	<b>Cost per acre</b>	<b>Total Cost</b>
Continuous No-Till (SL-15)	63	\$100	\$6,300
Small Grain Cover Crop (SL-8)	63	\$30	\$1,890
Permanent vegetative cover on cropland (SL-1)	0	\$175	\$0
Sod Waterway (WP-3)	0	\$1,600	\$0
Cropland Buffer/Field Borders (CP-33 & WQ-1)	0	\$600	\$0
<b>Total</b>			<b>\$8,190</b>

<b>Back Creek Proposed Pasture BMPs</b>			
<b>BMP</b>	<b>Acre Installed</b>	<b>Cost per acre</b>	<b>Total Cost</b>
Vegetative Cover on Critical Areas (SL-11)	269	\$1,200	\$322,800
Reforestation of Erodible Pasture (FR-1)	142	\$560	\$79,520
Pasture Management (EQIP 528, SL-10T)	2,694	\$75	\$202,050
Wet Detention Pond	1,450	\$150	\$217,500
<b>Total</b>			<b>\$821,870</b>

<b>Back Creek Proposed Livestock Exclusion Systems and Manure Management</b>					
<b>BMP</b>	<b>Total Length of Proposed BMP (feet)</b>	<b>Average Length Per System (feet)</b>	<b>Systems</b>	<b>Cost Per System</b>	<b>Total Cost</b>
CREP Livestock Exclusion (CRSL-6)	0	2,551	0	\$27,000	\$0
Livestock Exclusion with Grazing Land Management (SL-6T/LE-1T)	104,265	2,979	35	\$21,000	\$735,000
Livestock Exclusion with Reduced Setback (LE-2T)	6,832	1,708	4	\$17,000	\$68,000
Small Acreage Grazing System (SL-6AT)	5,958	2,979	2	\$9,000	\$18,000

<b>Back Creek Proposed Livestock Exclusion Systems and Manure Management</b>					
<b>BMP</b>	<b>Total Length of Proposed BMP (feet)</b>	<b>Average Length Per System (feet)</b>	<b>Systems</b>	<b>Cost Per System</b>	<b>Total Cost</b>
Stream Protection/Fencing (WP-2T)	5,992	5,992	1	\$21,000	\$21,000
Manure Storage (WP-4) - Dairy	N/A	N/A	0	\$100,000	\$0
Manure Storage (WP-4) - Beef	N/A	N/A	0	\$58,000	\$0
<b>Total</b>					<b>\$842,000</b>

\*Total Length of Proposed Livestock Exclusion = 123,047 feet

### Carvin Creek

#### BMP = Best Management Practice

Costs included in the following tables are based on BMP installation and do not include maintenance unless otherwise noted.

Carvin Creek Residential Waste Treatment BMPs			
BMP	Total Number of Systems	Cost per System	Total Cost
Septic System Pumpout (RB-1)	22	\$300	\$6,600
Sewer Connection (Targeted Areas and RB-2)	181	\$9,500	\$1,719,500
Repaired Septic System (RB-3)	16	\$3,600	\$57,600
Septic System Install/Replace (RB-4)	18	\$6,000	\$108,000
Alternative Waste Treatment System (RB-5)	2	\$16,000	\$32,000
<b>Total</b>			<b>\$1,923,700</b>

Carvin Creek Pet Waste Programs			
BMP	Units	Cost per unit	Total Cost
Educational Campaign	1	\$5,000	\$5,000
Pet Waste Stations <sup>1</sup>	7	\$4,180	\$29,260
<b>Total</b>			<b>\$34,260</b>

<sup>1</sup>Pet Waste Stations include cost for five years of bag/liner refills

Carvin Creek Existing Detention Pond Retrofits				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Infiltration Basin	35	538	\$6,000	\$3,228,000
Constructed Wetland	34	538	\$2,900	\$1,560,200
<b>Total</b>				<b>\$4,788,200</b>

Carvin Creek Proposed Stormwater BMPs				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Bioretention	118	590	\$10,000	\$5,900,000
Raingarden	118	118	\$5,000	\$590,000
Infiltration Trench	118	117	\$6,000	\$702,000
Manufactured BMP	118	142	\$20,000	\$2,840,000
Constructed Wetland	55	1577	\$2,900	\$4,573,300

<b>Carvin Creek Proposed Stormwater BMPs</b>				
<b>BMP</b>	<b>Number</b>	<b>Total Acres-Treated</b>	<b>Cost per acre treated</b>	<b>Total Cost</b>
Detention Pond	10	196	\$3,800	\$744,800
Permeable Paver	5	5	\$240,000	\$1,200,000
Vegetated Swale	10	150	\$18,150	\$2,722,500
Rain Barrel	147	3	\$150	\$450
Riparian Buffer (Forested)	N/A	16	\$3,500	\$56,000
Riparian Buffer (Grass/Shrub)	N/A	16	\$360	\$5,760
<b>Total</b>				<b>\$19,334,810</b>

<b>Carvin Creek Proposed Cropland BMPs</b>			
<b>BMP</b>	<b>Acres Installed</b>	<b>Cost per acre</b>	<b>Total Cost</b>
Continuous No-Till (SL-15)	N/A	\$100	N/A
Small Grain Cover Crop (SL-8)	N/A	\$30	N/A
Permanent vegetative cover on cropland (SL-1)	N/A	\$175	N/A
Sod Waterway (WP-3)	N/A	\$1,600	N/A
Cropland Buffer/Field Borders (CP-33 & WQ-1)	N/A	\$600	N/A
<b>Total</b>			<b>\$0</b>

<b>Carvin Creek Proposed Pasture BMPs</b>			
<b>BMP</b>	<b>Acre Installed</b>	<b>Cost per acre</b>	<b>Total Cost</b>
Vegetative Cover on Critical Areas (SL-11)	97	\$1,200	\$116,400
Reforestation of Erodible Pasture (FR-1)	54	\$560	\$30,240
Pasture Management (EQIP 528, SL-10T)	487	\$75	\$36,525
<b>Total</b>			<b>\$183,165</b>

<b>Carvin Creek Proposed Livestock Exclusion Systems and Manure Management</b>					
<b>BMP</b>	<b>Total Length of Proposed BMP (feet)</b>	<b>Average Length Per System (feet)</b>	<b>Systems</b>	<b>Cost Per System</b>	<b>Total Cost</b>
CREP Livestock Exclusion (CRSL-6)	2,551	2,551	1	\$27,000	\$27,000
Livestock Exclusion with Grazing Land Management (SL-6T/LE-1T)	20,853	2,979	7	\$21,000	\$147,000
Livestock Exclusion with Reduced Setback (LE-2T)	2,979	2,979	1	\$17,000	\$17,000
Small Acreage Grazing System (SL-6AT)	0	1,708	0	\$9,000	\$0
Stream Protection/Fencing (WP-2T)	0	5,992	0	\$21,000	\$0

<b>Carvin Creek Proposed Livestock Exclusion Systems and Manure Management</b>					
<b>BMP</b>	<b>Total Length of Proposed BMP (feet)</b>	<b>Average Length Per System (feet)</b>	<b>Systems</b>	<b>Cost Per System</b>	<b>Total Cost</b>
Manure Storage (WP-4) - Dairy	N/A	N/A	1	\$100,000	\$100,000
Manure Storage (WP-4) - Beef	N/A	N/A	1	\$58,000	\$58,000
<b>Total</b>					<b>\$349,000</b>

\*Total Length of Proposed Livestock Exclusion = 26,383 feet

<b>Carvin Creek Planned and Proposed Stream Restoration</b>			
<b>Total Estimated Stream Length for Restoration (Feet)</b>	<b>Planned or Ongoing Projects (feet)</b>	<b>Additional Proposed Stream Restoration (feet)</b>	<b>Cost (\$300/foot of Restoration)</b>
<b>12,433</b>	<b>0</b>	<b>12,433</b>	<b>\$3,729,900</b>

\*Total Stream Length in Watershed = 526,924

## Glade Creek

### BMP = Best Management Practice

Costs included in the following tables are based on BMP installation and do not include maintenance unless otherwise noted.

Glade Creek Residential Waste Treatment BMPs			
BMP	Total Number of Systems	Cost per System	Total Cost
Septic System Pumpout (RB-1)	597	\$300	\$179,100
Sewer Connection (Targeted Areas and RB-2)	265	\$9,500	\$2,517,500
Repaired Septic System (RB-3)	511	\$3,600	\$1,839,600
Septic System Install/Replace (RB-4)	429	\$6,000	\$2,574,000
Alternative Waste Treatment System (RB-5)	45	\$16,000	\$720,000
<b>Total</b>			<b>\$7,830,200</b>

Glade Creek Pet Waste Programs			
BMP	Units	Cost per unit	Total Cost
Educational Campaign	1	\$5,000	\$5,000
Pet Waste Stations <sup>1</sup>	6	\$4,180	\$25,080
<b>Total</b>			<b>\$30,080</b>
<sup>1</sup> Pet Waste Stations include cost for five years of bag/liner refills			

Glade Creek Existing Detention Pond Retrofits				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Infiltration Basin	22	421	\$6,000	\$2,526,000
Constructed Wetland	31	577	\$2,900	\$1,673,300
<b>Total</b>				<b>\$4,199,300</b>

Glade Creek Proposed Stormwater BMPs				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Bioretention	177	885	\$10,000	\$8,850,000
Raingarden	177	177	\$5,000	\$885,000
Infiltration Trench	177	176	\$6,000	\$1,056,000
Manufactured BMP	177	214	\$20,000	\$4,280,000
Constructed Wetland	140	4013	\$2,900	\$11,637,700

Glade Creek Proposed Stormwater BMPs				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Detention Pond	10	196	\$3,800	\$744,800
Permeable Paver	5	5	\$240,000	\$1,200,000
Vegetated Swale	10	150	\$18,150	\$2,722,500
Rain Barrel	245	6	\$150	\$900
Riparian Buffer (Forested)	N/A	16	\$3,500	\$56,000
Riparian Buffer (Grass/Shrub)	N/A	16	\$360	\$5,760
<b>Total</b>				<b>\$31,438,660</b>

Glade Creek Proposed Cropland BMPs			
BMP	Acres Installed	Cost per acre	Total Cost
Continuous No-Till (SL-15)	50	\$100	\$5,000
Small Grain Cover Crop (SL-8)	45	\$30	\$1,350
Permanent vegetative cover on cropland (SL-1)	3	\$175	\$525
Sod Waterway (WP-3)	7	\$1,600	\$11,200
Cropland Buffer/Field Borders (CP-33 & WQ-1)	3	\$600	\$1,800
<b>Total</b>			<b>\$19,875</b>

Glade Creek Proposed Pasture BMPs			
BMP	Acre Installed	Cost per acre	Total Cost
Vegetative Cover on Critical Areas (SL-11)	724	\$1,200	\$868,800
Reforestation of Erodible Pasture (FR-1)	402	\$560	\$225,120
Pasture Management (EQIP 528, SL-10T)	3,618	\$75	\$271,350
<b>Total</b>			<b>\$1,365,270</b>

Glade Creek Proposed Livestock Exclusion Systems and Manure Management					
BMP	Total Length of Proposed BMP (feet)	Average Length Per System (feet)	Systems	Cost Per System	Total Cost
CREP Livestock Exclusion (CRSL-6)	10,204	2,551	4	\$27,000	\$108,000
Livestock Exclusion with Grazing Land Management (SL-6T/LE-1T)	163,845	2,979	55	\$21,000	\$1,155,000
Livestock Exclusion with Reduced Setback (LE-2T)	10,248	1,708	6	\$17,000	\$102,000
Small Acreage Grazing System (SL-6AT)	8,937	2,979	3	\$9,000	\$27,000



<b>Glade Creek Proposed Livestock Exclusion Systems and Manure Management</b>					
<b>BMP</b>	<b>Total Length of Proposed BMP (feet)</b>	<b>Average Length Per System (feet)</b>	<b>Systems</b>	<b>Cost Per System</b>	<b>Total Cost</b>
Stream Protection/Fencing (WP-2T)	11,984	5,992	2	\$21,000	\$42,000
Manure Storage (WP-4) - Dairy	N/A	N/A	8	\$100,000	\$800,000
Manure Storage (WP-4) - Beef	N/A	N/A	8	\$58,000	\$464,000
<b>Total</b>					<b>\$2,698,000</b>

\*Total Length of Proposed Livestock Exclusion = 205,218 feet

<b>Glade Creek Planned and Proposed Stream Restoration</b>			
<b>Total Estimated Stream Length for Restoration (Feet)</b>	<b>Planned or Ongoing Projects (feet)</b>	<b>Additional Proposed Stream Restoration (feet)</b>	<b>Cost (\$300/foot of Restoration)</b>
<b>11,818</b>	<b>4,720</b>	<b>7,098</b>	<b>\$2,129,400</b>

\*Total Stream Length in Watershed = 500,852 feet

## Lick Run

### BMP = Best Management Practice

Costs included in the following tables are based on BMP installation and do not include maintenance unless otherwise noted.

Lick Run Residential Waste Treatment BMPs			
BMP	Total Number of Systems	Cost per System	Total Cost
Septic System Pumpout (RB-1)	2	\$300	\$600
Sewer Connection (Targeted Areas and RB-2)	112	\$9,500	\$1,064,000
Repaired Septic System (RB-3)	1	\$3,600	\$3,600
Septic System Install/Replace (RB-4)	5	\$6,000	\$30,000
Alternative Waste Treatment System (RB-5)	0	\$16,000	\$0
<b>Total</b>			<b>\$1,098,200</b>

Lick Run Pet Waste Programs			
BMP	Units	Cost per unit	Total Cost
Educational Campaign	1	\$5,000	\$5,000
Pet Waste Stations <sup>1</sup>	19	\$4,180	\$79,420
<b>Total</b>			<b>\$84,420</b>
<sup>1</sup> Pet Waste Stations include cost for five years of bag/liner refills			

Lick Run Existing Detention Pond Retrofits				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Infiltration Basin	10	72	\$6,000	\$432,000
Constructed Wetland	33	228	\$2,900	\$661,200
<b>Total</b>				<b>\$1,093,200</b>

Lick Run Proposed Stormwater BMPs				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Bioretention	150	750	\$10,000	\$7,500,000
Raingarden	150	150	\$5,000	\$750,000
Infiltration Trench	150	149	\$6,000	\$894,000
Manufactured BMP	150	181	\$20,000	\$3,620,000
Constructed Wetland	149	4271	\$2,900	\$12,385,900

<b>Lick Run Proposed Stormwater BMPs</b>				
<b>BMP</b>	<b>Number</b>	<b>Total Acres-Treated</b>	<b>Cost per acre treated</b>	<b>Total Cost</b>
Detention Pond	10	196	\$3,800	\$744,800
Permeable Paver	5	5	\$240,000	\$1,200,000
Vegetated Swale	10	150	\$18,150	\$2,722,500
Rain Barrel	246	6	\$150	\$900
Riparian Buffer (Forested)	N/A	23	\$3,500	\$80,500
Riparian Buffer (Grass/Shrub)	N/A	23	\$360	\$8,280
<b>Total</b>				<b>\$29,906,880</b>

<b>Lick Run Proposed Cropland BMPs</b>			
<b>BMP</b>	<b>Acres Installed</b>	<b>Cost per acre</b>	<b>Total Cost</b>
Continuous No-Till (SL-15)	N/A	\$100	N/A
Small Grain Cover Crop (SL-8)	N/A	\$30	N/A
Permanent vegetative cover on cropland (SL-1)	N/A	\$175	N/A
Sod Waterway (WP-3)	N/A	\$1,600	N/A
Cropland Buffer/Field Borders (CP-33 & WQ-1)	N/A	\$600	N/A
<b>Total</b>			<b>\$0</b>

<b>Lick Run Proposed Pasture BMPs</b>			
<b>BMP</b>	<b>Acre Installed</b>	<b>Cost per acre</b>	<b>Total Cost</b>
Vegetative Cover on Critical Areas (SL-11)	11	\$1,200	\$13,200
Reforestation of Erodible Pasture (FR-1)	6	\$560	\$3,360
Pasture Management (EQIP 528, SL-10T)	53	\$75	\$3,975
Wet Detention Pond	15	\$75	\$1,125
<b>Total</b>			<b>\$21,660</b>

<b>Lick Run Proposed Livestock Exclusion Systems and Manure Management</b>					
<b>BMP</b>	<b>Total Length of Proposed BMP (feet)</b>	<b>Average Length Per System (feet)</b>	<b>Systems</b>	<b>Cost Per System</b>	<b>Total Cost</b>
CREP Livestock Exclusion (CRSL-6)	N/A	N/A	N/A	N/A	N/A
Livestock Exclusion with Grazing Land Management (SL-6T/LE-1T)	N/A	N/A	N/A	N/A	N/A
Livestock Exclusion with Reduced Setback (LE-2T)	N/A	N/A	N/A	N/A	N/A
Small Acreage Grazing System (SL-6AT)	N/A	N/A	N/A	N/A	N/A
Stream Protection/Fencing (WP-2T)	N/A	N/A	N/A	N/A	N/A

<b>Lick Run Proposed Livestock Exclusion Systems and Manure Management</b>					
<b>BMP</b>	<b>Total Length of Proposed BMP (feet)</b>	<b>Average Length Per System (feet)</b>	<b>Systems</b>	<b>Cost Per System</b>	<b>Total Cost</b>
Manure Storage (WP-4) - Dairy	N/A	N/A	N/A	N/A	N/A
Manure Storage (WP-4) - Beef	N/A	N/A	N/A	N/A	N/A
<b>Total</b>					<b>\$0</b>

\*Total Length of Proposed Livestock Exclusion = 0 Feet

<b>Lick Run Planned and Proposed Stream Restoration</b>			
<b>Total Estimated Stream Length for Restoration (Feet)</b>	<b>Planned or Ongoing Projects (feet)</b>	<b>Additional Proposed Stream Restoration (feet)</b>	<b>Cost (\$300/foot of Restoration)</b>
<b>1,203</b>	<b>0</b>	<b>1,203</b>	<b>\$360,900</b>

\*Total Stream Length in Watershed = 50,692 feet

## Mason Creek

### BMP = Best Management Practice

Costs included in the following tables are based on BMP installation and do not include maintenance unless otherwise noted.

Mason Creek Residential Waste Treatment BMPs			
BMP	Total Number of Systems	Cost per System	Total Cost
Septic System Pumpout (RB-1)	129	\$300	\$38,700
Sewer Connection (Targeted Areas and RB-2)	563	\$9,500	\$5,348,500
Repaired Septic System (RB-3)	85	\$3,600	\$306,000
Septic System Install/Replace (RB-4)	133	\$6,000	\$798,000
Alternative Waste Treatment System (RB-5)	11	\$16,000	\$176,000
<b>Total</b>			<b>\$6,667,200</b>

Mason Creek Pet Waste Programs			
BMP	Units	Cost per unit	Total Cost
Educational Campaign	1	\$5,000	\$5,000
Pet Waste Stations <sup>1</sup>	6	\$4,180	\$25,080
<b>Total</b>			<b>\$30,080</b>
<sup>1</sup> Pet Waste Stations include cost for five years of bag/liner refills			

Mason Creek Existing Detention Pond Retrofits				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Infiltration Basin	17	264	\$6,000	\$1,584,000
Constructed Wetland	10	149	\$2,900	\$432,100
<b>Total</b>				<b>\$2,016,100</b>

Mason Creek Proposed Stormwater BMPs				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Bioretention	118	590	\$10,000	\$5,900,000
Raingarden	118	118	\$5,000	\$590,000
Infiltration Trench	118	117	\$6,000	\$702,000
Manufactured BMP	118	142	\$20,000	\$2,840,000
Constructed Wetland	67	1921	\$2,900	\$5,570,900

<b>Mason Creek Proposed Stormwater BMPs</b>				
<b>BMP</b>	<b>Number</b>	<b>Total Acres-Treated</b>	<b>Cost per acre treated</b>	<b>Total Cost</b>
Detention Pond	10	196	\$3,800	\$744,800
Permeable Paver	5	5	\$240,000	\$1,200,000
Vegetated Swale	10	150	\$18,150	\$2,722,500
Rain Barrel	86	2	\$150	\$300
Riparian Buffer (Forested)	N/A	2	\$3,500	\$7,000
Riparian Buffer (Grass/Shrub)	N/A	2	\$360	\$720
<b>Total</b>				<b>\$20,278,220</b>

<b>Mason Creek Proposed Cropland BMPs</b>			
<b>BMP</b>	<b>Acres Installed</b>	<b>Cost per acre</b>	<b>Total Cost</b>
Continuous No-Till (SL-15)	9	\$100	\$900
Small Grain Cover Crop (SL-8)	9	\$30	\$270
Permanent vegetative cover on cropland (SL-1)	0	\$175	\$0
Sod Waterway (WP-3)	0	\$1,600	\$0
Cropland Buffer/Field Borders (CP-33 & WQ-1)	0	\$600	\$0
<b>Total</b>			<b>\$1,170</b>

<b>Mason Creek Proposed Pasture BMPs</b>			
<b>BMP</b>	<b>Acre Installed</b>	<b>Cost per acre</b>	<b>Total Cost</b>
Vegetative Cover on Critical Areas (SL-11)	94	\$1,200	\$112,800
Reforestation of Erodible Pasture (FR-1)	52	\$560	\$29,120
Pasture Management (EQIP 528, SL-10T)	470	\$75	\$35,250
<b>Total</b>			<b>\$177,170</b>

<b>Mason Creek Proposed Livestock Exclusion Systems and Manure Management</b>					
<b>BMP</b>	<b>Total Length of Proposed BMP (feet)</b>	<b>Average Length Per System (feet)</b>	<b>Systems</b>	<b>Cost Per System</b>	<b>Total Cost</b>
CREP Livestock Exclusion (CRSL-6)	2,551	2,551	1	\$27,000	\$27,000
Livestock Exclusion with Grazing Land Management (SL-6T/LE-1T)	20,853	2,979	7	\$21,000	\$147,000
Livestock Exclusion with Reduced Setback (LE-2T)	1,708	1,708	1	\$17,000	\$17,000
Small Acreage Grazing System (SL-6AT)	0	2,979	0	\$9,000	\$0
Stream Protection/Fencing (WP-2T)	0	5,992	0	\$21,000	\$0

<b>Mason Creek Proposed Livestock Exclusion Systems and Manure Management</b>					
<b>BMP</b>	<b>Total Length of Proposed BMP (feet)</b>	<b>Average Length Per System (feet)</b>	<b>Systems</b>	<b>Cost Per System</b>	<b>Total Cost</b>
Manure Storage (WP-4) - Dairy	N/A	N/A	1	\$100,000	\$100,000
Manure Storage (WP-4) - Beef	N/A	N/A	1	\$58,000	\$58,000
<b>Total</b>					<b>\$349,000</b>

\*Total Length of Proposed Livestock Exclusion = 25,112 feet

<b>Mason Creek Planned and Proposed Stream Restoration</b>			
<b>Total Estimated Stream Length for Restoration (Feet)</b>	<b>Planned or Ongoing Projects (feet)</b>	<b>Additional Proposed Stream Restoration (feet)</b>	<b>Cost (\$300/foot of Restoration)</b>
<b>10,264</b>	<b>0</b>	<b>10,264</b>	<b>\$3,079,200</b>

\*Total Stream Length in Watershed = 434,970 feet

### **Mud Lick Creek, Murray Run, and Ore Branch**

#### **BMP = Best Management Practice**

**Costs included in the following tables are based on BMP installation and do not include maintenance unless otherwise noted.**

<b>Mud Lick Creek, Murray Run, and Ore Branch Residential Waste Treatment BMPs</b>			
<b>BMP</b>	<b>Total Number of Systems</b>	<b>Cost per System</b>	<b>Total Cost</b>
Septic System Pumpout (RB-1)	23	\$300	\$6,900
Sewer Connection (Targeted Areas and RB-2)	0	\$9,500	\$0
Repaired Septic System (RB-3)	20	\$3,600	\$72,000
Septic System Install/Replace (RB-4)	6	\$6,000	\$36,000
Alternative Waste Treatment System (RB-5)	1	\$16,000	\$16,000
<b>Total</b>			<b>\$130,900</b>

<b>Mud Lick Creek, Murray Run, and Ore Branch Pet Waste Programs</b>			
<b>BMP</b>	<b>Units</b>	<b>Cost per unit</b>	<b>Total Cost</b>
Educational Campaign	1	\$5,000	\$5,000
Pet Waste Stations <sup>1</sup>	14	\$4,180	\$58,520
<b>Total</b>			<b>\$63,520</b>

<sup>1</sup>Pet Waste Stations include cost for five years of bag/liner refills

<b>Mud Lick Creek, Murray Run, and Ore Branch Existing Detention Pond Retrofits</b>				
<b>BMP</b>	<b>Number</b>	<b>Total Acres-Treated</b>	<b>Cost per acre treated</b>	<b>Total Cost</b>
Infiltration Basin	25	661	\$6,000	\$3,966,000
Constructed Wetland	80	2154	\$2,900	\$6,246,600
<b>Total</b>				<b>\$10,212,600</b>

<b>Mud Lick Creek, Murray Run, and Ore Branch Proposed Stormwater BMPs</b>				
<b>BMP</b>	<b>Number</b>	<b>Total Acres-Treated</b>	<b>Cost per acre treated</b>	<b>Total Cost</b>
Bioretention	300	1500	\$10,000	\$15,000,000
Raingarden	300	300	\$5,000	\$1,500,000
Infiltration Trench	300	299	\$6,000	\$1,794,000
Manufactured BMP	300	362	\$20,000	\$7,240,000
Constructed Wetland	156	4472	\$2,900	\$12,968,800



<b>Mud Lick Creek, Murray Run, and Ore Branch Proposed Stormwater BMPs</b>				
<b>BMP</b>	<b>Number</b>	<b>Total Acres-Treated</b>	<b>Cost per acre treated</b>	<b>Total Cost</b>
Detention Pond	10	196	\$3,800	\$744,800
Permeable Paver	5	5	\$240,000	\$1,200,000
Vegetated Swale	10	150	\$18,150	\$2,722,500
Rain Barrel	345	8	\$150	\$1,200
Riparian Buffer (Forested)	N/A	15	\$3,500	\$52,500
Riparian Buffer (Grass/Shrub)	N/A	15	\$360	\$5,400
<b>Total</b>				<b>\$43,229,200</b>

<b>Mud Lick Creek, Murray Run, and Ore Branch Proposed Cropland BMPs</b>			
<b>BMP</b>	<b>Acres Installed</b>	<b>Cost per acre</b>	<b>Total Cost</b>
Continuous No-Till (SL-15)	3	\$100	\$300
Small Grain Cover Crop (SL-8)	0	\$30	\$0
Permanent vegetative cover on cropland (SL-1)	0	\$175	\$0
Sod Waterway (WP-3)	0	\$1,600	\$0
Cropland Buffer/Field Borders (CP-33 & WQ-1)	0	\$600	\$0
<b>Total</b>			<b>\$300</b>

<b>Mud Lick Creek, Murray Run, and Ore Branch Proposed Pasture BMPs</b>			
<b>BMP</b>	<b>Acre Installed</b>	<b>Cost per acre</b>	<b>Total Cost</b>
Vegetative Cover on Critical Areas (SL-11)	9	\$1,200	\$10,800
Reforestation of Erodible Pasture (FR-1)	9	\$560	\$5,040
Pasture Management (EQIP 528, SL-10T)	10	\$75	\$750
<b>Total</b>			<b>\$16,590</b>

<b>Mud Lick Creek, Murray Run, and Ore Branch Proposed Livestock Exclusion Systems and Manure Management</b>					
<b>BMP</b>	<b>Total Length of Proposed BMP (feet)</b>	<b>Average Length Per System (feet)</b>	<b>Systems</b>	<b>Cost Per System</b>	<b>Total Cost</b>
CREP Livestock Exclusion (CRSL-6)	0	2,551	0	\$27,000	\$0
Livestock Exclusion with Grazing Land Management (SL-6T/LE-1T)	2,979	2,979	1	\$21,000	\$21,000
Livestock Exclusion with Reduced Setback (LE-2T)	0	1,708	0	\$17,000	\$0
Small Acreage Grazing System (SL-6AT)	0	2,979	0	\$9,000	\$0

<b>Mud Lick Creek, Murray Run, and Ore Branch Proposed Livestock Exclusion Systems and Manure Management</b>					
<b>BMP</b>	<b>Total Length of Proposed BMP (feet)</b>	<b>Average Length Per System (feet)</b>	<b>Systems</b>	<b>Cost Per System</b>	<b>Total Cost</b>
Stream Protection/Fencing (WP-2T)	0	5,992	0	\$21,000	\$0
Manure Storage (WP-4) - Dairy	N/A	N/A	N/A	\$100,000	N/A
Manure Storage (WP-4) - Beef	N/A	N/A	N/A	\$58,000	N/A
<b>Total</b>					<b>\$21,000</b>

\*Total Length of Proposed Livestock Exclusion = 2,979 feet

<b>Mud Lick Creek, Murray Run, and Ore Branch Planned and Proposed Stream Restoration</b>			
<b>Total Estimated Stream Length for Restoration (Feet)</b>	<b>Planned or Ongoing Projects (feet)</b>	<b>Additional Proposed Stream Restoration (feet)</b>	<b>Cost (\$300/foot of Restoration)</b>
<b>5,482</b>	<b>4,360</b>	<b>1,122</b>	<b>\$336,600</b>

\*Total Stream Length in Watershed = 232,320 feet

## Peters Creek

### BMP = Best Management Practice

Costs included in the following tables are based on BMP installation and do not include maintenance unless otherwise noted.

Peters Creek Residential Waste Treatment BMPs			
BMP	Total Number of Systems	Cost per System	Total Cost
Septic System Pumpout (RB-1)	12	\$300	\$3,600
Sewer Connection (Targeted Areas and RB-2)	94	\$9,500	\$893,000
Repaired Septic System (RB-3)	8	\$3,600	\$28,800
Septic System Install/Replace (RB-4)	16	\$6,000	\$96,000
Alternative Waste Treatment System (RB-5)	1	\$16,000	\$16,000
<b>Total</b>			<b>\$1,037,400</b>

Peters Creek Pet Waste Programs			
BMP	Units	Cost per unit	Total Cost
Educational Campaign	1	\$5,000	\$5,000
Pet Waste Stations <sup>1</sup>	1	\$4,180	\$4,180
<b>Total</b>			<b>\$9,180</b>
<sup>1</sup> Pet Waste Stations include cost for five years of bag/liner refills			

Peters Creek Existing Detention Pond Retrofits				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Infiltration Basin	9	154	\$6,000	\$924,000
Constructed Wetland	19	309	\$2,900	\$896,100
<b>Total</b>				<b>\$1,820,100</b>

Peters Creek Proposed Stormwater BMPs				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Bioretention	160	800	\$10,000	\$8,000,000
Raingarden	160	160	\$5,000	\$800,000
Infiltration Trench	160	159	\$6,000	\$954,000
Manufactured BMP	160	193	\$20,000	\$3,860,000
Constructed Wetland	57	1634	\$2,900	\$4,738,600

<b>Peters Creek Proposed Stormwater BMPs</b>				
<b>BMP</b>	<b>Number</b>	<b>Total Acres-Treated</b>	<b>Cost per acre treated</b>	<b>Total Cost</b>
Detention Pond	10	196	\$3,800	\$744,800
Permeable Paver	5	5	\$240,000	\$1,200,000
Vegetated Swale	10	150	\$18,150	\$2,722,500
Rain Barrel	180	4	\$150	\$600
Riparian Buffer (Forested)	N/A	11	\$3,500	\$38,500
Riparian Buffer (Grass/Shrub)	N/A	11	\$360	\$3,960
<b>Total</b>				<b>\$23,062,960</b>

<b>Peters Creek Proposed Cropland BMPs</b>			
<b>BMP</b>	<b>Acres Installed</b>	<b>Cost per acre</b>	<b>Total Cost</b>
Continuous No-Till (SL-15)	N/A	\$100	N/A
Small Grain Cover Crop (SL-8)	N/A	\$30	N/A
Permanent vegetative cover on cropland (SL-1)	N/A	\$175	N/A
Sod Waterway (WP-3)	N/A	\$1,600	N/A
Cropland Buffer/Field Borders (CP-33 & WQ-1)	N/A	\$600	N/A
<b>Total</b>			<b>\$0</b>

<b>Peters Creek Proposed Pasture BMPs</b>			
<b>BMP</b>	<b>Acre Installed</b>	<b>Cost per acre</b>	<b>Total Cost</b>
Vegetative Cover on Critical Areas (SL-11)	9	\$1,200	\$10,800
Reforestation of Erodible Pasture (FR-1)	18	\$560	\$10,080
Pasture Management (EQIP 528, SL-10T)	162	\$75	\$12,150
<b>Total</b>			<b>\$33,030</b>

<b>Peters Creek Proposed Livestock Exclusion Systems and Manure Management</b>					
<b>BMP</b>	<b>Total Length of Proposed BMP (feet)</b>	<b>Average Length Per System (feet)</b>	<b>Systems</b>	<b>Cost Per System</b>	<b>Total Cost</b>
CREP Livestock Exclusion (CRSL-6)	0	2,551	0	\$27,000	\$0
Livestock Exclusion with Grazing Land Management (SL-6T/LE-1T)	2,979	2,979	1	\$21,000	\$21,000
Livestock Exclusion with Reduced Setback (LE-2T)	0	1,708	0	\$17,000	\$0
Small Acreage Grazing System (SL-6AT)	0	2,979	0	\$9,000	\$0
Stream Protection/Fencing (WP-2T)	0	5,992	0	\$21,000	\$0

<b>Peters Creek Proposed Livestock Exclusion Systems and Manure Management</b>					
<b>BMP</b>	<b>Total Length of Proposed BMP (feet)</b>	<b>Average Length Per System (feet)</b>	<b>Systems</b>	<b>Cost Per System</b>	<b>Total Cost</b>
Manure Storage (WP-4) - Dairy	N/A	N/A	0	\$100,000	\$0
Manure Storage (WP-4) - Beef	N/A	N/A	1	\$58,000	\$58,000
<b>Total</b>					<b>\$79,000</b>

\*Total Length of Proposed Livestock Exclusion = 2,979 feet

<b>Peters Creek Planned and Proposed Stream Restoration</b>			
<b>Total Estimated Stream Length for Restoration (Feet)</b>	<b>Planned or Ongoing Projects (feet)</b>	<b>Additional Proposed Stream Restoration (feet)</b>	<b>Cost (\$300/foot of Restoration)</b>
<b>2,245</b>	<b>0</b>	<b>2,245</b>	<b>\$673,500</b>

\*Total Stream Length in Watershed = 95,162 feet

## Roanoke River 1

### BMP = Best Management Practice

Costs included in the following tables are based on BMP installation and do not include maintenance unless otherwise noted.

Roanoke River 1 Residential Waste Treatment BMPs			
BMP	Total Number of Systems	Cost per System	Total Cost
Septic System Pumpout (RB-1)	197	\$300	\$59,100
Sewer Connection (Targeted Areas and RB-2)	835	\$9,500	\$7,932,500
Repaired Septic System (RB-3)	134	\$3,600	\$482,400
Septic System Install/Replace (RB-4)	180	\$6,000	\$1,080,000
Alternative Waste Treatment System (RB-5)	15	\$16,000	\$240,000
<b>Total</b>			<b>\$9,794,000</b>

Roanoke River 1 Pet Waste Programs			
BMP	Units	Cost per unit	Total Cost
Educational Campaign	1	\$5,000	\$5,000
Pet Waste Stations <sup>1</sup>	11	\$4,180	\$45,980
<b>Total</b>			<b>\$50,980</b>
<sup>1</sup> Pet Waste Stations include cost for five years of bag/liner refills			

Roanoke River 1 Existing Detention Pond Retrofits				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Infiltration Basin	53	1298	\$6,000	\$7,788,000
Constructed Wetland	25	596	\$2,900	\$1,728,400
<b>Total</b>				<b>\$9,516,400</b>

Roanoke River 1 Proposed Stormwater BMPs				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Bioretention	275	1375	\$10,000	\$13,750,000
Raingarden	275	275	\$5,000	\$1,375,000
Infiltration Trench	275	274	\$6,000	\$1,644,000
Manufactured BMP	275	332	\$20,000	\$6,640,000
Constructed Wetland	167	4787	\$2,900	\$13,882,300

Roanoke River 1 Proposed Stormwater BMPs				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Detention Pond	10	196	\$3,800	\$744,800
Permeable Paver	5	5	\$240,000	\$1,200,000
Vegetated Swale	10	150	\$18,150	\$2,722,500
Rain Barrel	370	8	\$150	\$1,200
Riparian Buffer (Forested)	N/A	30	\$3,500	\$105,000
Riparian Buffer (Grass/Shrub)	N/A	30	\$360	\$10,800
<b>Total</b>				<b>\$42,075,600</b>

Roanoke River 1 Proposed Cropland BMPs			
BMP	Acres Installed	Cost per acre	Total Cost
Continuous No-Till (SL-15)	25	\$100	\$2,500
Small Grain Cover Crop (SL-8)	5	\$30	\$150
Permanent vegetative cover on cropland (SL-1)	2	\$175	\$350
Sod Waterway (WP-3)	4	\$1,600	\$6,400
Cropland Buffer/Field Borders (CP-33 & WQ-1)	2	\$600	\$1,200
<b>Total</b>			<b>\$10,600</b>

Roanoke River 1 Proposed Pasture BMPs			
BMP	Acre Installed	Cost per acre	Total Cost
Vegetative Cover on Critical Areas (SL-11)	286	\$1,200	\$343,200
Reforestation of Erodible Pasture (FR-1)	159	\$560	\$89,040
Pasture Management (EQIP 528, SL-10T)	1,430	\$75	\$107,250
<b>Total</b>			<b>\$539,490</b>

Roanoke River 1 Proposed Livestock Exclusion Systems and Manure Management					
BMP	Total Length of Proposed BMP (feet)	Average Length Per System (feet)	Systems	Cost Per System	Total Cost
CREP Livestock Exclusion (CRSL-6)	5,102	2,551	2	\$27,000	\$54,000
Livestock Exclusion with Grazing Land Management (SL-6T/LE-1T)	41,706	2,979	14	\$21,000	\$294,000
Livestock Exclusion with Reduced Setback (LE-2T)	3,416	1,708	2	\$17,000	\$34,000
Small Acreage Grazing System (SL-6AT)	2,979	2,979	1	\$9,000	\$9,000
Stream Protection/Fencing (WP-2T)	0	5,992	0	\$21,000	\$0

<b>Roanoke River 1 Proposed Livestock Exclusion Systems and Manure Management</b>					
<b>BMP</b>	<b>Total Length of Proposed BMP (feet)</b>	<b>Average Length Per System (feet)</b>	<b>Systems</b>	<b>Cost Per System</b>	<b>Total Cost</b>
Manure Storage (WP-4) - Dairy	N/A	N/A	2	\$100,000	\$200,000
Manure Storage (WP-4) - Beef	N/A	N/A	2	\$58,000	\$116,000
<b>Total</b>					<b>\$707,000</b>

\*Total Length of Proposed Livestock Exclusion = 53,203 feet

<b>Roanoke River 1 Planned and Proposed Stream Restoration</b>			
<b>Total Estimated Stream Length for Restoration (Feet)</b>	<b>Planned or Ongoing Projects (feet)</b>	<b>Additional Proposed Stream Restoration (feet)</b>	<b>Cost (\$300/foot of Restoration)</b>
<b>22,506</b>	<b>0</b>	<b>22,506</b>	<b>\$6,751,800</b>

\*Total Stream Length in Watershed = 953,810 feet



## Roanoke River 2

### BMP = Best Management Practice

Costs included in the following tables are based on BMP installation and do not include maintenance unless otherwise noted.

Roanoke River 2 Residential Waste Treatment BMPs			
BMP	Total Number of Systems	Cost per System	Total Cost
Septic System Pumpout (RB-1)	153	\$300	\$45,900
Sewer Connection (Targeted Areas and RB-2)	39	\$9,500	\$370,500
Repaired Septic System (RB-3)	86	\$3,600	\$309,600
Septic System Install/Replace (RB-4)	86	\$6,000	\$516,000
Alternative Waste Treatment System (RB-5)	8	\$16,000	\$128,000
<b>Total</b>			<b>\$1,370,000</b>

Roanoke River 2 Pet Waste Programs			
BMP	Units	Cost per unit	Total Cost
Educational Campaign	1	\$5,000	\$5,000
Pet Waste Stations <sup>1</sup>	22	\$4,180	\$91,960
<b>Total</b>			<b>\$96,960</b>

<sup>1</sup>Pet Waste Stations include cost for five years of bag/liner refills

Roanoke River 2 Existing Detention Pond Retrofits				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Infiltration Basin	29	501	\$6,000	\$3,006,000
Constructed Wetland	21	366	\$2,900	\$1,061,400
<b>Total</b>				<b>\$4,067,400</b>

Roanoke River 2 Proposed Stormwater BMPs				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Bioretention	250	1250	\$10,000	\$12,500,000
Raingarden	250	250	\$5,000	\$1,250,000
Infiltration Trench	250	249	\$6,000	\$1,494,000
Manufactured BMP	250	302	\$20,000	\$6,040,000
Constructed Wetland	200	5733	\$2,900	\$16,625,700

Roanoke River 2 Proposed Stormwater BMPs				
BMP	Number	Total Acres-Treated	Cost per acre treated	Total Cost
Detention Pond	10	196	\$3,800	\$744,800
Permeable Paver	5	5	\$240,000	\$1,200,000
Vegetated Swale	10	150	\$18,150	\$2,722,500
Rain Barrel	430	10	\$150	\$1,500
Riparian Buffer (Forested)	N/A	28	\$3,500	\$98,000
Riparian Buffer (Grass/Shrub)	N/A	28	\$360	\$10,080
<b>Total</b>				<b>\$42,686,580</b>

Roanoke River 2 Proposed Cropland BMPs			
BMP	Acres Installed	Cost per acre	Total Cost
Continuous No-Till (SL-15)	1	\$100	\$100
Small Grain Cover Crop (SL-8)	0	\$30	\$0
Permanent vegetative cover on cropland (SL-1)	0	\$175	\$0
Sod Waterway (WP-3)	0	\$1,600	\$0
Cropland Buffer/Field Borders (CP-33 & WQ-1)	0	\$600	\$0
<b>Total</b>			<b>\$100</b>

Roanoke River 2 Proposed Pasture BMPs			
BMP	Acre Installed	Cost per acre	Total Cost
Vegetative Cover on Critical Areas (SL-11)	263	\$1,200	\$315,600
Reforestation of Erodible Pasture (FR-1)	146	\$560	\$81,760
Pasture Management (EQIP 528, SL-10T)	1,316	\$75	\$98,700
<b>Total</b>			<b>\$496,060</b>

Roanoke River 2 Proposed Livestock Exclusion Systems and Manure Management					
BMP	Total Length of Proposed BMP (feet)	Average Length Per System (feet)	Systems	Cost Per System	Total Cost
CREP Livestock Exclusion (CRSL-6)	2,551	2,551	1	\$27,000	\$27,000
Livestock Exclusion with Grazing Land Management (SL-6T/LE-1T)	23,832	2,979	8	\$21,000	\$168,000
Livestock Exclusion with Reduced Setback (LE-2T)	1,708	1,708	1	\$17,000	\$17,000
Small Acreage Grazing System (SL-6AT)	2,979	2,979	1	\$9,000	\$9,000
Stream Protection/Fencing (WP-2T)	0	5,992	0	\$21,000	\$0

<b>Roanoke River 2 Proposed Livestock Exclusion Systems and Manure Management</b>					
<b>BMP</b>	<b>Total Length of Proposed BMP (feet)</b>	<b>Average Length Per System (feet)</b>	<b>Systems</b>	<b>Cost Per System</b>	<b>Total Cost</b>
Manure Storage (WP-4) - Dairy	N/A	N/A	2	\$100,000	\$200,000
Manure Storage (WP-4) - Beef	N/A	N/A	2	\$58,000	\$116,000
<b>Total</b>					<b>\$537,000</b>

\*Total Length of Proposed Livestock Exclusion = 31,070 feet

<b>Roanoke River 2 Planned and Proposed Stream Restoration</b>			
<b>Total Estimated Stream Length for Restoration (Feet)</b>	<b>Planned or Ongoing Projects (feet)</b>	<b>Additional Proposed Stream Restoration (feet)</b>	<b>Cost (\$300/foot of Restoration)</b>
<b>2,674</b>	<b>1,000</b>	<b>1,674</b>	<b>\$502,200</b>

\*Total Stream Length in Watershed = 113,318 feet

### **Tinker Creek**

#### **BMP = Best Management Practice**

**Costs included in the following tables are based on BMP installation and do not include maintenance unless otherwise noted.**

<b>Tinker Creek Residential Waste Treatment BMPs</b>			
<b>BMP</b>	<b>Total Number of Systems</b>	<b>Cost per System</b>	<b>Total Cost</b>
Septic System Pumpout (RB-1)	688	\$300	\$206,400
Sewer Connection (Targeted Areas and RB-2)	244	\$9,500	\$2,318,000
Repaired Septic System (RB-3)	459	\$3,600	\$1,652,400
Septic System Install/Replace (RB-4)	558	\$6,000	\$3,348,000
Alternative Waste Treatment System (RB-5)	49	\$16,000	\$784,000
<b>Total</b>			<b>\$8,308,800</b>

<b>Tinker Creek Pet Waste Programs</b>			
<b>BMP</b>	<b>Units</b>	<b>Cost per unit</b>	<b>Total Cost</b>
Educational Campaign	1	\$5,000	\$5,000
Pet Waste Stations <sup>1</sup>	7	\$4,180	\$29,260
<b>Total</b>			<b>\$34,260</b>
<sup>1</sup> Pet Waste Stations include cost for five years of bag/liner refills			

<b>Tinker Creek Existing Detention Pond Retrofits</b>				
<b>BMP</b>	<b>Number</b>	<b>Total Acres-Treated</b>	<b>Cost per acre treated</b>	<b>Total Cost</b>
Infiltration Basin	32	348	\$6,000	\$2,088,000
Constructed Wetland	27	293	\$2,900	\$849,700
<b>Total</b>				<b>\$2,937,700</b>

<b>Tinker Creek Proposed Stormwater BMPs</b>				
<b>BMP</b>	<b>Number</b>	<b>Total Acres-Treated</b>	<b>Cost per acre treated</b>	<b>Total Cost</b>
Bioretention	248	1240	\$10,000	\$12,400,000
Raingarden	248	248	\$5,000	\$1,240,000
Infiltration Trench	248	247	\$6,000	\$1,482,000
Manufactured BMP	248	299	\$20,000	\$5,980,000
Constructed Wetland	192	5504	\$2,900	\$15,961,600

<b>Tinker Creek Proposed Stormwater BMPs</b>				
<b>BMP</b>	<b>Number</b>	<b>Total Acres-Treated</b>	<b>Cost per acre treated</b>	<b>Total Cost</b>
Detention Pond	10	196	\$3,800	\$744,800
Permeable Paver	5	5	\$240,000	\$1,200,000
Vegetated Swale	10	150	\$18,150	\$2,722,500
Rain Barrel	358	8	\$150	\$1,200
Riparian Buffer (Forested)	N/A	26	\$3,500	\$91,000
Riparian Buffer (Grass/Shrub)	N/A	26	\$360	\$9,360
<b>Total</b>				<b>\$41,832,460</b>

<b>Tinker Creek Proposed Cropland BMPs</b>			
<b>BMP</b>	<b>Acres Installed</b>	<b>Cost per acre</b>	<b>Total Cost</b>
Continuous No-Till (SL-15)	N/A	\$100	N/A
Small Grain Cover Crop (SL-8)	N/A	\$30	N/A
Permanent vegetative cover on cropland (SL-1)	N/A	\$175	N/A
Sod Waterway (WP-3)	N/A	\$1,600	N/A
Cropland Buffer/Field Borders (CP-33 & WQ-1)	N/A	\$600	N/A
<b>Total</b>			<b>\$0</b>

<b>Tinker Creek Proposed Pasture BMPs</b>			
<b>BMP</b>	<b>Acre Installed</b>	<b>Cost per acre</b>	<b>Total Cost</b>
Vegetative Cover on Critical Areas (SL-11)	1,299	\$1,200	\$1,558,800
Reforestation of Erodible Pasture (FR-1)	722	\$560	\$404,320
Pasture Management (EQIP 528, SL-10T)	6,497	\$75	\$487,275
<b>Total</b>			<b>\$2,450,395</b>

<b>Tinker Creek Proposed Livestock Exclusion Systems and Manure Management</b>					
<b>BMP</b>	<b>Total Length of Proposed BMP (feet)</b>	<b>Average Length Per System (feet)</b>	<b>Systems</b>	<b>Cost Per System</b>	<b>Total Cost</b>
CREP Livestock Exclusion (CRSL-6)	10,204	2,551	4	\$27,000	\$108,000
Livestock Exclusion with Grazing Land Management (SL-6T/LE-1T)	163,845	2,979	55	\$21,000	\$1,155,000
Livestock Exclusion with Reduced Setback (LE-2T)	10,248	1,708	6	\$17,000	\$102,000
Small Acreage Grazing System (SL-6AT)	8,937	2,979	3	\$9,000	\$27,000
Stream Protection/Fencing (WP-2T)	11,984	5,992	2	\$21,000	\$42,000

<b>Tinker Creek Proposed Livestock Exclusion Systems and Manure Management</b>					
<b>BMP</b>	<b>Total Length of Proposed BMP (feet)</b>	<b>Average Length Per System (feet)</b>	<b>Systems</b>	<b>Cost Per System</b>	<b>Total Cost</b>
Manure Storage (WP-4) - Dairy	N/A	N/A	15	\$100,000	\$1,500,000
Manure Storage (WP-4) - Beef	N/A	N/A	15	\$58,000	\$870,000
<b>Total</b>					<b>\$3,804,000</b>

\*Total Length of Proposed Livestock Exclusion = 205,218 feet

<b>Tinker Creek Planned and Proposed Stream Restoration</b>			
<b>Total Estimated Stream Length for Restoration (Feet)</b>	<b>Planned or Ongoing Projects (feet)</b>	<b>Additional Proposed Stream Restoration (feet)</b>	<b>Cost (\$300/foot of Restoration)</b>
<b>14,999</b>	<b>4,665</b>	<b>10,334</b>	<b>\$3,100,200</b>

\*Total Stream Length in Watershed = 635,653 feet

### Expansion and Creation of Street Sweeping Programs

Street Sweeping Costing Table				
Municipality	Additional Lane Miles to be Swept per year	Cost Per mile swept	Equipment Cost	Total Cost
City of Roanoke	2,526	\$40	NA	\$101,040
City of Salem	1,058	\$40	NA	\$42,320
County of Roanoke	5,092	\$40	\$40,000	\$203,680
Total				\$347,040

\*Total cost is annual basis, besides the initial cost of the sweeper for Roanoke County, no maintenance cost is included

- City of Roanoke
  - Expanded program by sweeping residential streets 4 cycles a year, and arterial streets 18 cycles a year
- City of Salem
  - Expanded program by sweeping streets every three weeks or 18 cycles a year (currently once a month)
- County of Roanoke
  - Proposed half the roads be swept once a month
- Vinton – Indicated there was no plans for expansion of their street sweeping program

### Proposed Urban Landuse Conversion

Proposed Urban Landuse Conversion based on Urban Tree Canopy Layer			
Subwatershed	Sum of UTC Possible Area (Acres)	1% of UTC Implemented (acres)	Total Cost (\$3,500 per acre)
Back Creek	8,117	81	\$283,500
Carvin Creek	2,780	28	\$98,000
Glade Creek	3,043	30	\$105,000
Lick Run	3,052	31	\$108,500
Mason Creek	1,591	16	\$56,000
Mud Lick Creek, Murray Run, and Ore Branch	4,848	48	\$168,000
Peters Creek	1,979	20	\$70,000
Roanoke River 1	7,035	70	\$245,000
Roanoke River 2	5,042	50	\$175,000
Tinker Creek	2,381	24	\$84,000
<b>Total</b>	<b>39,867</b>	<b>398</b>	<b>\$1,393,000</b>